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Title: Twittering on about mental health – is it worth the effort?**Authors:** Mahesh Jayaram^{1,2}, Lindsay Moran³ and Clive Adams⁴

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ABSTRACT

The medical community disseminates information increasingly using social media. Randomised controlled trials are being conducted in this area to evaluate effectiveness of social media with mixed results so far but more trials are likely to be published in the coming years. One recent twitter randomised control trial using Cochrane Schizophrenia Group reviews suggest that tweets increase the hits to the target webpage by about threefold and time spent on the webpage is also increased threefold when referrals come in via twitter. These are early findings and need further replication. Twitter appeals to professionals, entertainers, and politicians amongst others as a means of networking with peers and connecting with the wider public. Twitter in particular seems to be well placed for use by the medical community and is effective in promoting messages, updating information, interacting with each other both locally and internationally and more so during conferences. Twitter is also increasingly used to disseminate evidence in addition to traditional media such as academic peer reviewed journals. Caution is required using twitter as inadvertent tweets can lead to censure. Overall, the use of twitter responsibly by the medical community will increase visibility of research findings and ensure up to date evidence is readily accessible. This should open the door for further trials of different social media platforms to evaluate their effectiveness in disseminating accurate high quality information instantaneously to a global audience.

Twitter and other forms of social media are increasingly being used to disseminate information about all kinds of topics - including healthcare.^{1 2} Twitter is a medium where the account holder (who usually has a Twitter handle with the symbol @ in front of a name) sends out 140-character messages. These messages can include a hashtag (#), which makes them “searchable”. The messages are seen by the followers of the account holder and also by those who are looking for the specific #. The followers and those who view the message then can ‘retweet’ the message – essentially saying that ‘so and so is saying this’ and this is opinion is usually attributed to the sender of the initial Tweet - not the person who re-tweeted it. This is picked up by the followers of those who retweet and so on has a cascade effect and given how instantaneous this is, the message can go ‘viral’ within a few minutes – i.e. a phenomenon that occurs by chain reaction rather than mass dissemination that occurs in traditional media.

There are of course other forms of social media (Table 1), but Twitter appears to have been taken up by the medical and healthcare community with increasing enthusiasm.⁴⁻⁶ Now this media is used to evaluate symptoms, gather real-time data and for analysing trends following epidemic outbreaks of infectious diseases or natural disasters.⁷ For example, in a disaster the existing infrastructure usually collapses and access to different regions becomes incredibly difficult. With mobile signal coverage, often functioning even after disaster, it becomes easier to track real-time data using Twitter. Topic trends can be analysed providing accurate proxy measures of need as much as 2 weeks before official data are available.⁸

More recently, we were interested in evaluating if sending out a 140 character messages really had an effect on whether it would interest people in taking a look at the Cochrane summaries page and if they did come to the summaries page, would it interest them in staying on the page for a longer period of time compared to arriving at the page via other sources. At the time of design of our study we knew of no other trials. Now there are three one of which is ours (Table 2).

The other trials^{9 10} sent out messages about the contents of their journal to rather large numbers of followers and did not show any discernible effect. Our trial¹¹ was a randomised controlled trial in which participants were Cochrane Schizophrenia Group systematic reviews. These were published in the Cochrane library with free plain language summaries (PLS) available at <http://www.summaries.cochrane.org>. We stratified the reviews on baseline activity levels as high (≥ 19 unique views per week, n=14), medium (4.3–18.99 unique views per week, n=72) or low (<4.3 views unique per week, n=84) so that the eventual results would not be contaminated by

the popularity of the reviews. The intervention was a 'tweet package' of 3 tweets per review. This consisted of the review title, a pertinent extract from the review and a pithy statement or an intriguing question. The tweets were sent out to the following of Cochrane schizophrenia group and seemed, within a single week, to nearly triple the hit rate of going to the universally accessible online 'front page' of the review. We used Google Analytics to track the outcomes and were able to achieve 100% follow-up. The tweet arm and control arm received a total of 1162 and 449 visits respectively. Fewer intervention reviews had single page only visits (16% vs 31%, OR 0.41, 0.19 to 0.88) and users spent more time viewing intervention reviews (geometric mean 76 vs 31 s, ratio 2.5, 1.3 to 4.6). The micro-blogging – that Tweeting is – really seemed to engage people. Of course this does not mean that people are using the evidence but it is clearly one step closer. Few interventions have been shown to influence health-seeking behaviour – it is possible that this almost universally accessible form of 'product placement' of evidence could be one. There is the need for much more evaluation.

Twitter and General Practice (GP) – Twitter has had a huge impact on use by GPs both in the UK and in Australia with many GPs present in the 'Twittersphere'. For example, the Royal Australian College of General Practitioners (RACGP) twitter account has over 12,700 followers, many of whom are GPs. Similarly in the UK; The Royal College of General Practitioners (RCGP) has nearly 40,000 followers, again many of who are GPs. Other specific GP groups such as GP survival regularly influence policy making e.g. a recent showcasing of 700 GPs signing a letter saying they have no confidence in the UK Government's Sustainability and transformation plans (STPs) plans for the National Health Service (NHS). If anything, Twitter raises awareness of current issues and provides a platform for debate and opinion. As a whole, general practice can be an isolating career for professionals and being able to link with others on social media allows opportunity for discussion with peers, professional networking and sharing of educational resources. Some of the most active tweeting times are during GP conferences, with the UK leading the way with this. During the recent RCGP conference in October 2016, 7,864 tweets were posted using the hashtag #RCGPAC. During keynote presentations and discussions GPs tweet and share content from the conference, providing discussion amongst peers and information for those not present in the lectures, thereby unobtrusively contributing to discussions in real time. The Continuing Professional Development (CPD) learning potential is considerable. Busy practitioners can tailor what topics of interest they receive, by filtering either the users they follow into groups, i.e. "UK

GPs" or following specific topic hashtags, i.e. "#RCGPannualconference. Messages are instant, very short, and further detail can be read only if time allows and the user desires. Many GP leaders have embraced tweeting, linking them with members of the GP faction and the wider community. People like to connect to others and they like to talk to those wielding power. Twitter opens the door for this medium.

Twitter and secondary care/community use

Educational debates and journal clubs have been facilitated on Twitter by various groups in the medical community, both in hospital and in the community.¹² Many doctors now turn first to the online world to read about medical information and often it is through links on Twitter that they are introduced to new medical material. A few talented and high profile practitioners/institutions have considerable following (approximately upwards of 1000 followers for medical practitioners whilst the number increases to millions for singers and Hollywood celebrities). Most others have more modest reach (between 100 to 1000). For this group, it is particularly important that the investment of effort to disseminate out knowledge is, in itself, based on good evidence.

Expanding ones' followers on Twitter is a desirable thing as on a personal level it can gain tweets more traction and on a business level it means greater exposure. It is now commonplace for users to want to actively increase their followers to have a greater online presence. Business users will often employ professionals to manage their social accounts. Using applications such as Hootsuite means that tweets can be scheduled. There are also applications designed to increase followers within a particular niche. This strategy is being increasingly used by hospitals worldwide (including Trusts in the UK), CEOs and of hospitals, prominent researchers at Universities to increase awareness of their organisations, the work that they do and values they adhere to.

So promoting messages and disseminating evidence is one of the positive aspects of Twitter. There are also negative aspects to consider. Sometimes people post comments without considering the ramifications of their actions. This has led to the disciplining and firing of not just doctors, but politicians, sportspersons and many other professionals. For e.g. Justine Sacco, a former PR consultant from New York posted an ill-considered tweet to her 170 followers before boarding a plane. This was re-tweeted by a follower who had more than 15,000 followers. By the time she landed, a twitter storm had broken out with her tweet trending worldwide, leading to her sacking a couple of days later. Similarly, Dr Christian Solomonides was

anonymously referred to the General Medical Council (GMC) and was found guilty of using Twitter to inappropriately air personal and political views. The medical practice tribunal suspended his registration for 2 months (http://www.mpts-uk.org/static/documents/content/Dr_Christian_Michael_SOLOMONIDES_4_March_2016.pdf). There are now numerous online social media codes of conduct that have been published to help those new to tweeting.^{13 14}

The future

It is hard to predict the future except there will not be less social media. More patients and carers are going to be presenting to their doctors having gained information from these media and then disseminating what they thought of care back out using Twitter or Facebook or other online forms. Industry is already a heavy user and government bodies employ professionals to disseminate information in these ways.

There is no place to run for those who are social media phobic. We are all using it. When it comes to refreshing knowledge about that rare syndrome we have all but forgotten about – most of us take a peek at Wikipedia. It is therefore important that such sources of information are of highest quality – health care professionals have a responsibility towards this. E.g. Wikipedia is now working with Cochrane and the Wikipedia page on Chlorpromazine (<https://en.wikipedia.org/wiki/Chlorpromazine>) has efficacy and adverse event data that is directly populated from Cochrane reviews. It is important that high-grade knowledge is shared and not hoarded – and that the sharing is not felt to be a threat but enjoyed. These electronic conversations are not for the technophiles only - those tied to the phone or the computer - they are just a form of communication, entirely under the control of the user that can be as fun and informative as any other. Twittering on about mental health is definitely worth the effort.

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Table 1. Broad categories of social media (adapted from ³)

Category	Description	Example
Aggregators	Skim or refeed content	Alltop
Wikis	Feature user-driven information	Wikipedia
Networks	<i>General</i> Focused on a large, diverse audience	Facebook
	<i>Niche</i> Focused on a narrow audience	Corkd
	<i>White Label</i> Do-it-Yourself Networks	Ning
Media Sharing	Sites that focus on sharing media Books; Music; Video	
Blogging	Sites or utilities focused on full-scale blogging.	
Microblogging	Sites or utilities focused on micro-blogging	Twitter
Bookmarking	Focus is to enable users to manage their favourite links	de.licio.us
Experience reporting	Emphasis on having users report their experiences	Yelp
Location-based	Sites which to enable users to interact based on location	Dodgeball
Virtual worlds	For creation of avatars within a virtual environment	Second Life
Mobile	Focused on marrying web with mobile	Mobango

		Twitter		Facebook		N	Outcome	
		Followers		Followers			Google Analytics	
Fox et al.⁹	Journal articles	2-7 posts +/- image	>4000	2-7 posts +/- image + boosting	>28000	152	30 days	No effects
				2-7 posts +/- image		243		
Adams et al.¹¹	Cochrane reviews	3 posts on same day	>700			170	7 days	Visits increase (IRR 2.7 95% CI 2.2-3.3)

Table 2. Randomised Controlled Trials using social media